## PROF. TYNDALL ON LIGHT. THE THIRD LECTURE OF THE GREAT

Action of Crystals upon Light and Polarization The Generation, Reflection, Refrac-tion, and Analysis of Light-Beautiful Illustrations.

The great hall of the Cooper Institute s alled on Saturday night by those of both

ture of Prof. Tyndall. He said: ur last lecture we sought to familiarize our th the characteristics of wave motion. w a clear distinction between the motion ent particles. Passing through water-waves and all-vaves, we prepared our minds for the conor of waves of light propagated through he laminiferous ether. The analogy of sound till fix the whole mechanism in your minds. have a vibratory body which ates the wave-motion; we have, in the auditory nerve which receives are the auditory nerve which receives impressions of the sonorous waves. In the of light we have in the vibrating atoms of aminous body the originators of the wave-in, we have in the ether its vehicle, widle ptic nerve receives the impression of the iferous waves. We learned also that color red to the blue end of the spectrum. The fruitful principle of interference we also found applicable to the phenomena of light; and we

med. They, in the first place, take their rise the desire of the mind to penetrate to the reces of phenomena. This desire has long in a part of human nature. It prompted sar to say that he would exchange his victors for a glimpse of the sources of the Nite; may be seen working in Lucretius; it impels rwin to those daring speculations which of a years have so agitated the public mind. We re tearned that in framing theories the imaginoin does not create, but that it expands, minishes, moulds, and refines, as the case may materials derived from the world of fact and ervation.

The general facts of magnetism are most simply illustrated by a magnetized bar of steel, commonly called a bar magnet. Placing such a magnet upright upon a table, and bringing a magnetic needle near its bottom, one end of the needle promptly retreats from the magnet, while the other as promptly approaches. The needle is held quivering there by some invisible influence exerted upon it. Raising the needle along the magnet, but still avoiding contact, the rapidity of its oscillations decreases, because the force acting upon the needle becomes weaker. At the centre the end which had been previously drawn toward the magnet, retreats, and the opposite end approaches. As we ascend higher, the oscillations become more violent, because the force becomes stronger. At the imper end of the magnet, as at the lower half of the magnet attracts one end of the needle, while all the upper half attracts the opposite and. This doubleness of the magnet in cendic, while all the upper half attracts the opposite and this polarity, and the points near the ends of he magnet in which the force seems concentrated are called its poles.

What then will occur if we break this magnet in two at the centre? Will each of the separate talves act as it did when it formed part of the viole magnet, possessing two poles. This may be coved by breaking something of less value than he magnet—the steel of a

LADY'S STAYS,
or example, hardened and magnetized. It acts set the magnet. When broken, each half acts set the whole; and when these parts are again roken, we have still the perfect magnet, possissing as in the first instance, two poles. Push our breaking to its utmost limit; you will be riven to prolong your vision beyond that limit, and to contemplate this thing that we call magnet polarity as resident in the ultimate parties of the magnet. Each atom is endowed with his polar force.

Showering iron fillings upon the paper.

I notice a tendency of the fillings to arrange themselves in determinate lines. They cannot freely follow this tendency, for they are hampered by the friction against the paper. I help them by tapping the paper: each tap releases them for a moment, and enables them to follow their bias. But this is an experiment which can only be seen by myself. To enable you to see it, I take a pair of small magnets and by a simple optical arrangement throw the images of the magnets upon the screen. Scattering fron fillings over the glass plate to which the small magnets are attached, and tapping the plate, you see the arrangement of the iron fillings in those magnetic curves which have been so long familiar to scientific men. I have never seen more beautiful specimens of these curves than those recently obtained by Prof. Mayer of Hoboken, and I may add, in passing, that I have here named a young professor from whom I expect considerable things.

The aspect of these curves so fascinated Fara-

ther.

Now, this idea of structure as produced by clar force, opens a way for the intellect into an nairely new region, and the reason I ask you ow to accompany me into this region is, that are next inquiry relates to the action of crystals from light. Before I speak of this action I wish out to realize the process of crystalline archiecture.

when the plate is set on edge, a thin film of the liquid adheres. Warming the glass slightly, evaporation is promoted; the plate is then placed in a solar microscope, and an image of the film is thrown upon a white serven. The warmth of the illuminating beam adds itself to that already imparted to the glass plate, so that after a moment or two the film can no longer exist in the liquid condition. Molecule then closes with molecule, and you have a most impressive display of crestallizing energy overspreading the whole screen. You may produce something similar if you breathe upon the frost-ferus which overspread your window-banes in winter, and then observe through a lens the subsequent recongention of the film.

Here the crystallizing force is hampered by the adhesion of the film to the glass; nevertheless,

Sometimes the crystals start from the edge of e film and run through it from that edge, for, e crystallization being once started, the mole-

but on we have in the ether its vehicle, while so optic nerve receives the impression of the mainiferous waves. We learned also that color to the transported and the length of the state analogue of pitch, that the rapidity of tomic vibration augmented, and the length of the citer-waves decreased in passing from the set the analogue of pitch, that the rapidity of tomic vibration augmented, and the length of the citer-waves decreased in passing from the set they are also found applicable to the phenomena of light; and we cannot that, in consequence of the different engths of the ether-waves, they were extincises to the ether-waves, they were extincises to the colors of thin plates were accounted one color glowing with the complementary ones. This the colors of thin plates were accounted on the least important, was to illustrate the manner in which scientific theories are ormed. They, in the first place, take their rise in the desire of the mind to penetrate to the ources of phenomena. This desire has long seen a part of human nature. It prompted cortes for a glimpse of the sources of the Nile; that the event white the public mind. We have learned that in framing theories the imagistation of the case have so agitated the public mind. We have learned that in framing theories the imagistation of the case have so agitated the public mind. We have learned that in framing theories the imagistation of the case have of the sources of the take in the content of t

There is hardly a more beautiful and instruc-tive example of this play of molecular force than that furnished by the case of water. You have seen the exquisite frond-like forms produced by the crystallization of a FILM OF WATER ON A COLD WINDOW PANE.

FILM OF WATER ON A COLD WINDOW PANE.
You have also probably noticed the beautiful resettes tied together by the crystallizing force during the descent of a snow shower on a very caim day. The slopes and summits of the Alps are loaded in winter with these blossoms of the frost. They vary infinitely in detail of beauty, but the same angular magnitude is preserved throughout. An inflexible power binds spears and spicules to the angle of sixty degrees. The common ice of our lakes is also ruled in its deposition by the same angle. You may sometimes see in freezing water small crystals of stellar shapes, each star consisting of six rays, with this angle of sixty degrees between every two of them. This structure may be revealed in ordinary ice. In a sunbeam, or falling that, in our electric beam, we have an instrument delicate enough to unlock the frozen molecules without disturbing the order of their architecture.

According to the emission theory, the velocity of light in water and glass is greater than in air: according to the undulatory theory, the reverse is the case. This point has been subjected to the test of

the typessessing two poles. This may be breaking something of less value than tethe steel of a LADY'S STAYS, let hardened and magnetized. It acts ignet. When broken, each half acts to let; and when these parts are again have still the perfect magnet, positive to its utmost limit; you will be originate this thing that we call magnetize this thing that we call magnet to a good a surface of light so distant that the portion may our vision beyond that limit, template this thing that we call magnet, as a still the ultimate partimagnet. Each atom is endowed with force.

But suppose the wave would be retarded on passing into the denser medium.

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But suppose the wave would be retarded on the wave which first recarded, the other portions as they enter the glass being retarded in succession. This retarded, the other portions as they enter the glass being retarded in succession.

If we place two or more rods of fron near the magnet, the action becomes more complex, for then the iron needles are not only acted on by the magnet, but they act upon each other. And if we pass to smaller masses of iron—to iron blings, for example—we find that they act substantially as the needles, arranging themselves in definite forms, in obscience to the imagnetic action.

Placing a sheet of paper or of glass over this har magnet and showers are attached, and the sheet of the conclusion that each of the beams transmitted by the spar. Newton, reflection. Placing a sheet of paper or of glass over this har magnet and showers of the sheet of the conclusion that each of the beams transmitted by the spar. Newton reflected action.

The CELEBRATED HUYGHENS

THE CELEBRATED HUYGHENS

SOUGH to account for the phenomenon on the principles of the wave theory, and he sacceeded in doing so, the made highly important observations of the wave theory, and he sacceeded in the sheet of the wave theory, and he sacceeded in the sheet of the wave theory, and he sacceeded in the sheet of the wave theory, and he sacceeded in the sheet of the wave theory, and he sacceeded in the magnet of the wave theory, and he sacceeded in the magnet of the wave theory, and he sacceeded in the sheet of the wave theory, and he sacceeded in the sheet in principles of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded in the sact on the bar arranging the masses of iron—to be an incidence to the magnet of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded the magnet of the wave theory, and he sacceeded the sound in principles of the wave theory, and he sacceeded the saccine to be consistent for the spar. Newton, residences of the spar, and from the distinctive characters of the spar. Newton residences of the spar, and from the distinctive characters

scientific men. I have never seen more beautiful specimens of these curves than those recently bottained by Prof. Mayer of Hoboken, and I may add, in passing, that I have here named a young professor from whom I expect considerable in its as a property of these curves so fascinated Faraday that the greater portion of his intellectual line was devoted to pendering over them. He phenomena of magnetism which they run with a kind of materiality; and the probability is, that the propress of science by connecting the phenomena of magnetism with the luminiferous ether, will prove these "lines of force," as FARADAY LOVED TO CALL the magnetic curves, to represent a condition of this invisterious substratum of all radiant action. But it is not with the magnetic curves as such, that I now wish to occupy your attention; it is their relationship to theoretic conceptions that we have now to consider. By the action of the permanet upon the needle we obtain a notion of a notar force; by the breaking of the strip of magnetized steel we obtain the notion that polarity can attach itself to the ultimate particles of matter. The experiment with the iron filings introduces a new idea into the mind; the data anamely, of structural arrangement. Every pair of filings possesses four poles, two of which are attractive and two repulsive poles retreat, the consequence being a certain definite arrangement is simply a transcript of the logic of Nature, On the screen before you are the two disks of light produced by the double refraction of the aperture, two images of the aperture, two images of the sperture, two images of the aperture, two images of the produced by the now let us try to make substantially the expectation of Maius. I receive the beam from the hamp unon this plate of glass and refect it the hamp unon this plate of glass and refect it the hamp unon this plate of glass and refect it stem with the individual to the spar instead of two images, you see but one. So that the light, when polarized set with with the man intensity is at

check Many of My Statements,
and you will observe that such logic as connects
our experiments is simply a transcript of the
logic of Nature. On the screen before you are
the two disks of light produced by the double
refraction of the spar. They are, as you know,
two imnees of the aperture through which the
light issues from the camera. Placing the tourmaine in front of the aperture, two images of
the crystal will be obtained; but now let us
reason out what is to be expected from this
experiment. The light emergent from
the tourmaline is polarized. Placing the
crystal with its axis horizontal, the
vibrations of transmitted light will be
horizontal. Now the spar has two perpendicular directions of vibration, one of which at the
present moment is vertical, the other horizontal.
What are we to conclude? Why, that the green
light will be transmitted along the latter, which
is parallel to the tourmaline, and not along the
former, which is perpendicular to it. Hence we
infer that one image of the tourmaline will show
the ordinary green light of the crystal, while the
other image will be black.

LET US TEST OUR REASONING.

You see it is verified to the letter: By means

two plates of glass instead of one we augment the quantity of the

the quantity of the

TRANSMITTED POLARIZED LIGHT,
and by taking a bundle of piates we so increase
the quantity as to render the transmitted beam
for all practical purposes perfectly polarized,
indeed, bundles of glass plates are ofter employed as a means of furnishing polarized light.
Let us push our reasonings still further. When
the tournalines are crossed, the space where
they cross each other is black. But we have
seen that the least obliquity on the part of the
crystals permits light to get through both. Now
suppose, when the two plates are crossed, that
we interpose a third plate of tournaline between them, with its axis oblique to both. A
portion of the light transmitted by the first
plate will get through this intermediate one.
But after it has got through, its plane of
vibration has changed; it is no longer
perpendicular to the axis of the crystal
in front. Hence it will get through that
crystal. Thus, by reasoning, we infer that the
interposition of a third plate of tournaline
will in part abolish the darkness produced by
the crossing of the cther two plates. I have not
a third plate of tournaline; but the tale or mica
which you employ in your stoves is a more convenient substance, which acts in the same way.
Between the corressed tournalines, I introduce a
film of this crystal. You see the edge of the
film slowly descending, and as it descends between the tournalines. TRANSMITTED POLARIZED LIGHT,

LIGHT TAKES THE PLACE OF DARKNESS.

The darkness, in fact, seems scraped away as if it were something material.

We now stand upon the threshold of a new and stlendid optical domain. You have seen the two beams emergent from Iceland spar, and have proved them to be polarized. If we could abolish one of these beams, we might employ the other for experiments on polarized light. These beams, as you know, are refracted differently, and from this we are able to infer that under some circumstances the one may be totally reflected, and the other not. An optician, named Nicel, cut a crystal of Iceland spar in two in a certain direction. He polished the severed surfaces, and reunited them by Canada balsam, the surface of union being so inclined to the beam traversing the spar that the ordinary ray was permitted to pass on. The invention of the Nicel prism was a great step in practical optics, and quite recently such prisms have been constructed of a size which enables

short time ago. The two prisms here before you belong to my excellent triend. Mr. William Spottiswoode, and they were manufactured by Mr. Ladd. I have with me another pair of very noble prisma, still larger than these, manufactured for me by Mr. Browning, who has gained to high and well-merited a reputation in the construction of spectroscopes.

These two Nicol prisms play the same part as the crystals of tourmaline. Placed with their directions of vibration parallel, the light passes through both. When these directions are crossed the light is quenched. Introducing a film of mica between the prisms, the light is in part restored. But notice, when the film of mica is thin, you have not only light, but colored light. Our work for some time to come will be the examination of these colors. With this view, I will take a representative crystal, one easity dealt with; that is, the crystal gypsum, or selentie, which is crystalized sulphate of lime. Between the crossed Nicols I piace a thick plate of this crystal; like the mica, it restores the light, but it produces no color. With my penknife I take a thin splinter from this crystal and place it between the prisms; its image on the screen glows with the richest-colors. Turning the prism in front these colors gradually fade, disappear, but by continuing the rotation until the vibrating sections of the prisms are parallel.

VIVID COLORS AGAIN APPEAR,
but these colors are complementary to the former ones.

Some parches of the splinter appear of one color, some of another, these differences being due to the different thicknesses of the film. If the thicknesses be uniform, the color is uniform. Here, for instance, is a stellar shape, every lozenge of the star being a film of gypsum of uniform thickness. Each lozenge, vou observe, shows a brilliant uniform color. Of course it is easy, by shaping our films so as to represent flowers on other objects, to exhibit such objects in eclors unattainable by art. Here, for example, is a specimen of heartsease, the colors of which you

How He was Made to Believe that He had

At the time of its receipt the corpulent German was pasting. Selzing the telegram he obened it with more nervousness than Wood displayed at his hanging, and reading its contents, plunged his paste brush into the paste pet, with drew it, and chucking it up against the celling, exclaimed: "sheatdemen. I do not more tasting in this phiding. Ain'th: I am so rich like der terful. Four it."

Enatching his hat he rushed to the War Department building proper to see the officer in charge, but meeting the placid Dave he was informed that some general service clerks were passing in review, and that the Major could not be seen. Chafing with the delay, he wanted to go in "de 4 o'clock drain," he exclaimed: "I must got der furlough to gone and got the monish what I draws in their loudery. Dave, I must got den days or I goes der building out!"

In his frenzy he rushed to the room of Max, the "imperturbable," to get some sympathy, but only to receive the cold shoulder, and to bear what no man could endure—the gibes and sneers of poor Government clerks. Striking his heart with his hand, he exclaimed with true Dutch emphasis, "Don't it! you boor glerks is hig getous mit me because you don't draw notings mit your dickets," and leaving the room he turned half a dozen somersaults toward the west door, striking the light-baired messenger in the back of the neck, and with a Dutch tam says, "How you was been, hey? I don't was see you dis long time. I am worth \$75,000. Ain't it? Gome and get some larger."

Cranmer (not the one that was burned for principle, reinforced with several temperance clerks, attracted by the noise fotherwise they moderately to the health of a fortunate fellow clerk.

Armstrong, M. D., seeing the palpable necessity for some safety valve to keep down to reasonable pressure the spirits of his Teutonic patient and prevent arter exhaustion, recommended he draw a keep of lager by a string of sausages from the War Department to the navy yard, and he would see him before the evening train left; fee, \$10,000.

When last

ANOTHER SHOOTING AFFRAY. The Proprietor of a Theatre After a Theatrical Reporter-A Man Shot in the Big Toe. Elisha C. Gregory, one of the proprietors of the Canterbury Variety Theatre, attempted to shoot George Willcox, formerly a Herald rewith realize the process of crystalline architecture.

Lecture.

Look THEN INTO A GRANIF QUARRY, and spend a few minutes in examinant the rock. It is not of perfectly uniform texture. It is not of perfectly uniform texture in the cross and uniform texture. It is not of perfectly uniform texture in the cross and uniform texture in the cross and uniform texture. It is not of perfectly uniform texture in the cross and uniform texture in the cross and uniform texture. It is not of the perfectly uniform texture in the perfectly uniform texture in the cross and uniform texture in the perfectly unifor

MR. GEO. F. TRAIN'S ARREST.

THE PRISONER REFUSES BAIL, AND GOES TO THE TOMBS.

Capt. Byrne's Prison Fare the Great Comunuist before Judge Boardman-His Characteristic Reply to the Indictment-He will be his Own Counsel. About eight o'clock on Saturday morn-

ing Capt. Byrne visited Mr. George Francis Train's cell to inform him that if he wanted any breakfast he should order it from some outside restaurant. Mr. Train raised himself from his wooden bed, and haughtily waving his left arm, said: "I want nothing but prison fare. I will pay for nothing."
Capt. Byrne-Well, what will you eat?

Mr. Train-(with another haughty wave of his left arm)-Ham and eggs, hot muffins, and cofbut as you won't order anything I'll get your breakfast and pay for it myself.

MR. TRAIN'S BREAKFAST.

The ham, eggs, hot muffins, and coffee were procured, and Mr. Train partook of them with procured, and Mr. Train partook of them with gusto. Mr. Train's companion in misfortune, J. Wesley Nichols, was also provided with breakfast. Nichols had amused himself during the night with penellling choice extracts from the Train Light on the walls of his cell. In the course of the morning about a score of persons in sympathy with the doctrines for the advocacy of which Mr. Train was suffering, visited the prisoner. They were all eiderly men, respectable in specarance, and halled from Callfornia, Louisiana, and other parts of the country.

Mr. Train asked Capt. Byrnes whither he was cing taken. Capt. Byrne—To the District Attorney's office. Mr. Train—is the District Attorney a young

man?
Captain—I believe he is about 45 or 50.
Mr. Train—Is be a religious man?
Captain—I believe he is a religious man.
Mr. Train—Before what magistrate will I be

Mr. Train—Before what magistrate with a corought?
Captain—Judge Imraham.
Mr. Train—How old is he?
Captain—About 69.
Mr. Train—Is he a religious man?
Captain—I think he is.
Mr. Train—O yes, the old gentleman that tried.
Stokes. I won't have any lawyer to plead my case. Somebody has got to be sacrificed in the cause of right, and I am the man. I thought some years ago that politicians ruled the country, but I was wrong—it is the churchmen.

IN THE COURT HOUSE.

The next President of America then relapsed

try, but I was wrong—it is the churchmen.

IN THE COURT HOUSE.

The next President of America then relapsed into silence. On his arrival in the Court House be was met by Col. Blood, Counsellor Jordan of Cirginia, Capt. Daniel R. Lyddy, and other friends and admirers. Blood exhorted Mr. Train to stick to his colors. Now was the time to show the power of the Commune. Miss Minnie Merton Latuna, a woman of long dress and manly bat and hair, also addressed Mr. Train, and waved over him a silken flag which looked like a miniature rebel banner. She called it the rainbow flag of the new government. When Capt. Byrne arrived in the ante-room with his prisoners, the Court of Oyer and Terminer was engaged in the monotonous task of obtaining a tenth juror for the Stokes trial. Capt. Hyrne sent in word to Col. Fellows, who at once ordered the introduction of George Francis Train. Justice Boardman was on the bench, and Mesers. Fullerton, Beach, Tremain, and others were intently canvassing the general appearance of an unwilling candidate for the jury box.

The Modern Achilles.

When Mr. Train entered, Stokes trained his head and gazed anxiously at the great Communist. Mr. Train did not waik in with moody air and cautious tread, like an ordinary prisoner. He rushed in like a modern Achilles, his face lit up, his eyes bright and resolute, and his whole bearing indicative of soul-set determination. Miss Merton followed with her silken banner, and Nichols wobbled after, pale and irresolute. Mr. Train took his stand behind Mr. Tremain, and looked straight at Justice Boardman. Capt. Byrne handed the warrants to Col. Fellows.

"May it please your Honor," said Col. Fellows.

"May it piease your Honor," said Col. Fellows,
"I hold in my hand an indictment against
George Francis Train, who now stands at the
bar, charring him with publishing an obscene
paper called the Frain Lapac. I move that the
prisoner plead.
"Do you plead guilty or not guilty?" asked
Mr. Sparks, addressing Mr. Train.
"Guilty!" said the respondent, in a ringing
tone.

Capt. Lyddy. Counsellor Jordan, and otherseameastly urged him to withdraw his plea of guilty.

Mr. Train said: "I am the sole editor, publisher, and proprietor of the paper named, which contains nothing more than Bible quotations."

Col. Fellows (carnestly)—I object, your Honor, to the accused qualifying his plea.

Judge Boardman (to Mr. Train)—You must enter your plea without explanation.

Counsel suggested that the indictment be read. It charges George Francts Train with publishing a certain indecent paper entitled the Train Lyme, containing language too offensive to be entered on the indictment against the peace and dignity, &c. It also charges that on the 10th day of December George Francts Train gave away to one Anthony Comstock a copy of the paper aforesaid.

On hearing the latter clause, Mr. Train said, hurriedly "I never gave away a paper. He took it. That's a lie, and I'm not guilty of it."

Col. Fellows.—I protest, your Honor, against the respondent being allowed to qualify his plea in this way.

Mr. Beach (suggestively)—Enter a plea of not in this way.

Mr. Beach (suggestively)—Enter a plea of not guilty.
Mr. Train—I'm guilty of publishing, but I never gave away a copy. That is false.
A plea of not guilty was entered.

A plea of not guilty was entered.

IN THE JUDGE'S ROOM.

The indictment against Nichols was then read, charzing him with publishing the Train Lique.

Mr. Train said: "I am alone responsible. This young man had nothing to do with it, except as I employed him."

Nichols pleaded not guilty, and his ball was fixed at \$500. Both prisoners were remanded to jail. Mr. Train was taken into the Judge's anteroom, and was at once surrounded by a host of advisers. Miss Merton waved her silken banner, and urged Mr. Train to fight boldly in the good cause.
"I am guilty," said Mr. Train. "It's the law that's wrong, and the law has got to be changed. What do I care for prison. I'll raise the Commune, and hang a hundred of these dogs within ninety days." mune, and hang a hundred of these dogs within inliety days."

"But why won't you give bail?" ursed Capt. Liddy. "It won't help the cause for you to go to the Tombs."

"The mob will tear down the Tombs within thirty days," cried Mr. Train, with his old platform energy. "I'm willing to go to the Tombs. I'm guilty."

IN THE TOMBS.

At expostulation was in vain, and the next President of America was hurried to the stone building on Centre street. The questions usually addressed to prisoners were answered by Mr. Train as follows:

Residence, Si3 West Twenty-second street; age, 42; born in the United States; married and children; religion, Pagan; business, editor and publisher.

J. Wesley Nichols said that his residence was 735 Broadway; age 23, born in the United States; married, and children; business, photographer; and religion, Pagan.

The SUN reporter visited Mr. Train in his cell. The champion of reform was sitting on his bed, and received the reporter very cordially. The latter said, "Why do you not give bail. Two thousand newspapers fall with mine. It is the liberty of the press which is at stake. There is no law against infidelity, free speech, or free thought in the Constitution.

Reporter—Why did you plead guilty?

Mr. Train—Because I was guilty. I am sole editor and publisher of the Train Lique. It is as natural for me to teil the truth as it is for law-yers and politicians to lie. My quotations are verbathm from the Bible, and Christianity goes down with my sentence.

Reporter—If you go to jail under sentence, what then?

Mr. Train—I shall remain there till the cowardly press and people realize that their liberties are destroyed. Individuals die. Ideas and ne-

ardly press and people realize that their libertic are destroyed. Individuals die. Ideas and na MR. TRAIN HIS OWN COUNSEL.

Reporter—You intend to manage your own case?
Mr. Train—Yes, sir. I have declined the services of Caot. Liddy and others, and shall defend myself.
Reporter—Who will you hang first when you establish the Commune?
Mr. Train—First, the murderers; second, the threes: third, the leading politicians; fourth, an aditor or two; fifth, Congress.
Reporter—Who do you expect will constitute the Commune?
Mr. Train—All the people—ten millions of able-hodied men—after the panic will demand a Dictatorship, of which I shall be the head. The Federal Government, the Postmaster-General, and Attorney-General have acknowledged that I am right.
Reporter—Why do you think the law on which you have been arrosted, wrong?
Mr. Train—Because it strikes at the liberty of every journal in the land, and, if right, it stops every paper, shuts every month, and demon-

strates that despotism has destroyed civil liberty.

Mr. Train presented the reporter with the following verses, composed the previous night in the Mercer street police station, on his

TRUSTEENTH POLITICAL BASTILE.

Christian, as you pass the door of—
A pagan prisoner of state
In a nasty vault, in a gloomy cell,
Six fact six by three feet eight,
Is willing to pay the usual tell
For a Christian prayer for his heathen soul,

Why complain, where in harmony dwells Elghty-four prisoners in fourteen cells, Twenty-four hours without any food Produces in one such a plous mood.

Why not classify crime before you strike?
Why serve innocent and guilty alike?
The Church knows better what to do.
They always have a strangers' pew.
But here in this cell one comes to grief.
With murderer, drunkard, burglar, and thief.

The index and the lawyer plots with the rich, To tomble the poor in the criminal's ditch. Revolution will startle, when the cannon booms Death to the nurderers: Down with the Tombs The Vigilance Committee—God bring it soon! Down with the Ring! Vive is Commune! GEORGE PRANCIS TRAIN, Champion of the People.

FELON'S CELL NO. 7.

THE PRISONERS. At Mr. Train's special request, J. Wesley Nichols was placed in the same cell with his champion. Mr. Train has confined himself to prison fare, much to Mr. Nichols's disgust, since his incarceration in the Tombs. He at a his coffee and bread with appetite yesterday morning, and said that the dinner stew was excelent.

MRS. GROSVENOR'S HUSBAND.

A Brooklyn Man Arrested on Charge of Bignmy-Twenty Dollars to Bribe a Brooklyn Policeman. Mrs. Kate Grosvenor of Philadelphia has

caused the arrest of her husband, George Gros-venor, in Brooklyn, on a charge of bigamy. She accuses him of having married Annie M. Robin-

and lot!" "Well, you'd better be careful: send a hig man, for Grosvenor's a big man, and he's des-perate, too!"
"I'll see to that." said the Justice, and after a little thought he selected Officer John T. Burns one of the biggest men on the force.

JACK FROST'S REIGN.

The Sunday Skating in Central Park and the Driving in Harlem Lane.

The Canal street and Eighth avenue cars were yesterday crowded every trip, the intense cold drawing multitudes out of the city in search of sleighing and skating. As the cars arrived in rapid succession at the entrance to Central Park, they sent forth their loads. For head, to the lighter, but still somewhat diminutive vehicle in which a man, if so inclined, might take his mother-in-law for an economical ride.

Just above the Park gate the cars entered upon a tract of country dreary enough at any time, but in its frozen aspect doubly dismal. The unfinished roads were covered with snow, and on both sides of the car track were numerous ponds, on whose frozen surfaces an occasional youthful skater was disporting himself on one foot, having no skate on the other. On mounting an elevation overlooking a portion of the Park, however, a more lively picture was presented to the passengers in the; car. Hundreds of skaters covered the lake, and their numbers were every moment being augmented. In all directions sleights were dashing along, their tinkling bells sounding clear and pleasant upon the frosty air. On leaving the Park behind, nothing more was seen to break the utter duliness of the country until Manhattanville was reached. Here the road for miles was in superb condition for sleighing. As far as the eye could see, the snow lay dry and crisp without slush. A few whoeled vehicles were seen. They looked singularly out of place among the multitude of sleighs gliding over the road. The sport was indulged in, however, at the expense of pedestrianism. Walking was almost impossible, or only to be done at the imminent risk of being run over by occupying the centre of the road, or sustaining a severe fall by attempting to move on the glittering sheet of ice.

Among the notables out was the veteran sleigher, George Francis, who is usually the first to take the road, driving a fast bay horse. Alderman Charlock, Assemblyman Cox, from Minnesota, E. D. Slater, and Benjamin D. Forrest, were also out, as was also Mr. Robert Bonner, spinning over the snow behind Startle, James O'Brien, too, was there, apparently enenjoying himself immensely, as he dashed along drawn by a magnificent span of white horses.

A Husband's Intemperance and the Tragedy which Followed.

Between 11 and 12 o'clock on Saturday night Officer Dawson of the Washington street police station, Brooklyn, was attracted by the groans of a woman to the corner of Prospect and Charles streets. She was seated on the curbstone, and a man knelt by her side holding curbstone, and a man knelt by her side holding her head. A knife covered with blood was in the man's hand. The officer took them to the police station. The man gave his name as James Ridrit, and said that the woman was his wife Rilzabeth. She was weak under loss of blood, The police surgeon found four stabs in her back, one in her hand, one in her right leg, and one on the back of her head. The husband confessed that he had stabbed his wife, saying that he could not live with her and could not live with her and could not live without her. After her wounds had been dressed she was borne to her mother's home, 47 Green lane. The husband was held.

For some time past Fldritt and his wife have not lived together, owing to his intemperate habits. She abandoned him some months ago and took up her residence with her mother. He promised reformation and she returned to him. Five weeks ago she was again compelled to go to her mother. Mrs. Ridritt obtained employment in Miller's dining rooms. Fulton street, near Prospect. When returning home on Saturday night after her work, between il and 12 o'clock, she met her husband. He strove to persuade her to live with him again, and on her refusal he drew a dirk and stabbed her as described.

Yesterday afternoon Dr. Bonner visited Mrs. Eldritt. He tbinks that the wounds, though very severe and dangerous, may not prove fatal. The husband bitterly regrets his act, and anxiously inquires from every one the condition of his wife. They have been married four years and have one child three years old. her head. A knife covered with blood was in

Deputy Sheriff Seebacher's Ball. The Jacob Seebacher Coterie's ball, in Irving Hall, attracted a large number of well-known public men. Among them were Assemblyman Campbell, the Hon. Max Bayersdorfer, Alderman Wottman, the Hon. Charles Gerdiner, Alderman Krauss, Connsellors Moses, M. Charles Gerdiner, Alderman Krauss, Connsellors Moses, M. Charles and Dingle, Justice Hartman, Marshal Aurona, Meyer Elsas, J. H. Stitch, Detective Heidelberg, P. J. McLaughlin, Leo Schlessinger, Thomas F. Daily, John Van Glalm, Moris Friedsam, Police Capt, Murphy, Capt, Daniel R. Lyddy, James E. Hasson and others.

Easy terms for furniture, carpets, and bedding at B. M. Cowperthwait & Co.'s, 124 Chatham street, An financing stock and low prices. Bargains for capa, or payments received weekly or monthly. Paster and chamber suites in great variety.— Adv.

For weather strips for doors and windows go to E. S. & J. Torrey's, 160 Fulton street, near Broadway.

EATURDAY. Dec. 21—P.M.—A much more quietand subdued tone was observed at the Stock Exchange to-day, and speculation, as compared with the earlier pertien of the week, was decidedly sume. Eric, however, still commanded the chief attention, and a brisk trade in this specialty continued until the close of business though the excitement was greatly diminished and the fluctuations less important than on previous days of its week. The opening price was 61, with the maxiste at 61%, after which the course ranged from 61%-00%-00%(cs0)4600)242504 est, and the transactions were on an extended scale. The early sales were made at 783547854, after which there was a decline of 1 % cent. to 774, but from this point the price rose to 78%, though subsequently closing, after frequent fluctuations, at 78. There were no new features presented in this stock, but a lively trade was kept up throughout the day. There was also a more active business in Union Pacific during the morning, the price advancing to 3816, but in the later dealings dropping to 374. Advantage was taken of better prices to sell consideral le amounts of long stock. Western Union Telegraph was very strong, closing at \$154 bid, and \$1. Paul common exhibited more life than recorded for a long time, though hibited more life than recorded for a long time, though the fluctuations were trilling. Hannibal and St. Joseph was firm, selling at 421(3-49, but Northwestern common,

the fluctuations were triming. Hamiltonian St. Joseph was firm, selling at 421(240), but North western common, Rock Island, New York Central, Lake Shore, and in fact the remainder of the list, were neglected.

No special features were presented during the day, and the street was unusually free from speculative gossip. There appeared a truce between the bulls and bears, and with the exception of Eric and Pacific Mail there was nothing of interest to chronicle.

The gold market was very dull and uninteresting throughout the day. In the morning buyers were unaile to purchese any important smounts at 1114, while holders experienced equal difficulty in effecting sales at 1118. In the afternoon, however, there was a little more spirit evinced, and the price ran up to 1114, with the close. There is a generally bearish feeling among the room operators, though the larger speculators incline to the opinion that gold must be exported in January.

The rates on gold loans were 6, 5, 4, 2 and three per cent, for carrying to flat. The Assistant Treasurer redeemed in called bonds to-day \$6,00, and disbursed in coin interest \$2,50,000, mostly in January coupons. The total clearings at the Gold Exchange Bank were \$2,282,000; gold balances, \$2,00,001, and currency balances \$2,882,000; Robert 11184 (200 P. M. ...1114 (200 P. M. ...1114 (200 P. M. ...1114 (200 P. M. ...1114 (200 P. M. ...1115) (200 P. M. ...1115)

caused the arrest of her husband, George Grosvenor, in Brooklyn, on a charge of bigamy. She
accuses him of having married Annie M. Roblinson, who keeps a fancy goods store at 494 Court
street. The case was before Justice Walsh on
Friday. It is charged that Grosvenor abandoned
his wife two years ago in Philadelphia, came to
Erooklyn, made the acquaintance of Miss Robinson, and has for some time past been living
with her. He denies having married her, and
Miss Robinson says she never married him. The
officer who arrested Grosvenor says he found
him bebind the counter in the store 404 Court
street. Miss Robinson had gone out. He left a
note for her, and asked a young lady in the store
what directions he should put on H. She araswered. "Directit to Mrs. Grosvenor of course."
The officer who are sted that he believed the name of
Grosvenor is over the door.
Grosvenor is over the door.
The officer who had been led
to believe that she had obtained a divorce, as
she had told his mother and brother that she
had. Mrs. Grosvenor is a because a later,
adding. "She'll prove herself one before tetrial is over." He also said that he had been led
to believe that she had obtained a divorce, as
she had told his mother and brother that she
had. Mrs. Grosvenor is a beautiful brunetiet,
and dresses in the height of fashion. Her
madden hame was Kate Lowerse Miss Robinson
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the string prove herself one before tetrial is over." He also said that he had been led
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she had told his mother and brother that she
had. Mrs. Grosvenor is a becautiful brunetiet,
and dresses in the height of fashion. Her
madden hame was Kate Lowerse Miss Robinson
to his first wife. The hearing was adjourned
until Saturday.

"When Mrs. Grosvenor with her brothersliaw, W. A. Gumpert of 55 Joralemon street, was
een subpagenaed as witnesses for the prosecuton, Mrs. Grosvenor with her brothersliaw, W. A. Gumpert of 55 Joralemon street, was
rest, she said to Justi

Loans. \$7.7.80.40 \$275.81.40 Dec. 21. Differences. \$7.7.80.40 \$275.81.40 Dec. 18. Differences. \$7.7.80.40 \$275.81.40 Dec. 18. Doc. 18. Differences. \$7.7.80.40 \$275.81.40 Dec. \$1.80.20 Dec. \$1.00 Dec

insted at 28 to 24. Compare the transaction of a prices were well maintend the stated large and prices were well maintender the bonds and a still further increase in the inquiry is soon expected. The immense amount of capital set adoat through the January disbursements will seek reinvestment, and this class of securities will be greatly benefited thereby. Union Pacific land grants, 784,6781; incomes, 804,6801; western Union Telegraph 28, 88; Hudson River 208 S.F. exchitered, 1202 and 121; Lake shore divided donds, 98; Alton and T. H. ist mortgage, 100%; Chicago and Northwestern consols, 12; Toledo and Walbash and mortgage, 92; New Jersey Central lists, new, 103; New Jersey Southern last, 74; Pittshirgh Ft. W. and Chicago lists, 1045(2014); C. & R. I and Pacific 78, 1063, and 104; Milwankee and St. Paul last mortgage, 93%; Louisville and Nashville cons., 39, 39.

The following were the highest, lowest, and closing prices of stocks to-day;
The following were the highest, lowest, and closing prices of stocks to-day;

N. Y. C. & Hudson Con. 1104, 1105, 1105, 1104, 1104, 1105, 1104, 1104, 1105, 1104, 1104, 1105, 1104, 1104, 1104, 1104, 1105, 1104, 110 

cent.

The return of the estimated weekly earnings by the Trie Railway Company for the week ending Perember 15 were \$475,558, against \$25,000 hast year. Total earnings since November 1, \$2,595,506, against \$2,158,092 hast year. Increase for week, \$50,293. BANKING AND FINANCIAL.

THE COUPONS ON THE FIRST MORTGAGE RONDS of the NEW HAVEN, MIDDLETOWN, AND WILLI-MANTIC RAILROAD COMPANY, will be paid on presentation at the office of LEONARD, SHELDON & FOSTER, Bankers, 10 Wall street.

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terest allowed on all Daily Balances. Every accommo dation and facility afforded usual with City Banks.

Real Estate Market.

With the exception of the novel sale of lots by Jere. Johnson at Kingston, in Ulster county, the public transactions of the past week consisted of legal sales merely. A number of important transactions at private contract have been reported, although the ap-proach of holiday week has evidently diminished busi-ness generally. Among private transfers we notice one by V. K. Stevenson & Son of a four-story, high-stoep, brown-stone dwelling and let, 25x100, No. 620 Fifth av enue, on Columbia College lease at \$600 per annum, for.

A sale of some interest, also, was that of a lot south-act corner of Fifth avenue and Ninetieth street, to

dwellings adjoining the Pike property, southeast cor-

New York Markets.

SATURDAY, Dec. 21.—FLOUR AND GRAIN—The e-was a firmer and more active market for flour, mainly in good to prime shipping extras, at \$7.62.7.3. Wheat doing better, with a moderate business in No. 2 Milwaukee at \$1.664.631.57, and No. 1 spring at \$1.65. Cora firmer, with the sale of a line of \$2.00 hush prime old Ree at \$1.66 kgs\$1.57 and No. 1 spring at \$1.66. Corn the control of the control

MARINE INTELLIGENCE.

Steamship Geo. Cromwell, New Orleans, mase, and ass. Steamship John Gibson, Georgetown, D. C., mdsc. and

pass.
Steamship Fanits, Philadelphia, mdse. and pass.
Steamship Australia, Glasgow, indse. and pass.
Steamship Hatterns, Noriolk, indse. and pass.
Bark Frederick, Rotterdam, mdse.
Bark Sandy Hook, Gloucester, in ballast.
Brig Long Reach, Pensacois, Immber.
Aiso the usual river and coastwise vessels.

Busmess Rotices.

ment of fine furs can always be found at Burke's, of 10 Broadway, corner of Fulton st. Eurke's prices are s low as the lowest. Remember, you are sure of getting the genuine article from Burke. Give him a call. The best place in New York to buy reliable, watches, the diamonds, rich, fashionable jowelry, a. I sterling aliver wedding presents, is SQUIRE'S 97Funces st. Diamonds a specialty.

Pier F. N. R., New York, at 4 o'clock P. M., for Providence, Mondays, Wednesdays, and Fridays.

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Ladies, purchase Furs from the maunfac-ory, avoiding enormous retail prices. W. G. FLEMING, 146 Fulton st.

We ask our renders to try "Uncle Sam's Cough ure," only too, a bottle.

ley, the beloved wife of Michael Metrinicy, a native of Londonderry, Ireland.

Friends and relatives are requested to attend her fineral, from her late residence, it Poplar at., Brooklyn, at 2 P. M., on Tuesday, Breember 24.

Londonderry papers please copy.

STANWOOD—In Brighton, Mass., December 29. Capt., STANWOOD—In Brighton, Mass., December 29. Capt., STANWOOD—In Brighton, Mass., December 29. Capt., WARD—On December 11, Joseph H. hay, 18th son of Mary and Michael Ward, aged 1 year and 11 months.

Friends of the family are respectfully invited to not be the fineral, from the residence of the papers, 250 Wyckoff at., Brooklyn, E. D., to-morrow, at 2 P. M., WHIGHF.—In Augusta, Gas., December 21, Gen. Augbrose Robinson Wright, one of the members of Compress of the Mary and Sentings. He was 41 years of age, and one of the ablest and most prominent men in the State.

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FRENCH'S. Printing House Square. 1 of
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MAISON DOHEE Broadway, or 14th st. 1 32
PARE Cor Beekmaa and Nassau st. 
 PARK
 Cor. Beckman and Nassau st.

 ST. CHARLES
 648 Broadway
 1 G

 SWEENY'S
 68 Chatham st
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